

ABSTRACT OF THE DISCLOSURE

[0033] A method of speech recognition that uses hierarchical data structures that include a top level grammar and various related subgrammars, such as word, phone, and state subgrammars. A speech signal is acquired, and a probabilistic search is performed using the speech signal as an input, and using the (unexpanded) grammars and subgrammars as possible inputs. Memory is allocated to a subgrammar when a transition to that subgrammar is made during the probabilistic search. The subgrammar may then be expanded and evaluated, and the probability of a match between the speech signal and an element of the subgrammar for which memory has been allocated may be computed. Because unexpanded grammars and subgrammars take up very little memory, this method enables systems to recognize and process a larger vocabulary that would otherwise be possible. This method also permits grammars and subgrammars to be added, deleted, or selected by a remote computer while the speech recognition system is operating, allowing speech recognition systems to have a nearly unlimited vocabulary.